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CENTRAL INTELLIGENCE AGENCY

REPORT

INFORMATION REPORT

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COUNTRY Germany (Russian Zone)/USSR

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SUBJECT Development by EFEM of Electrical Measuring Instruments for the USSR

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NO. OF ENCLS. (LISTED BELOW)

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DATE OF INFO.

SUPPLEMENT TO REPORT NO.

THIS IS UNEVALUATED INFORMATION

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1. The firm of EFEM (Entwicklung und Fabrikation elektrischer Messinstrumente) in Berlin acts as a German research and development laboratory for prototypes of miscellaneous electrical measuring instruments for a firm in Leningrad.

2. EFEM was founded in 1945, under the instructions of the SMA, by a man named Kessler, who was also director of the firm 50X1-HUM

Kessler brought with him all other Siemens employees In September 1949, EFEM was placed under AEG Treptow for administrative purposes only. It is proposed eventually, as soon as space is available, to transfer EFEM to the AEG Treptow buildings.

3. The firm is at present located in Berlin-Oberschöneweide, Wilhelminenhofstrasse 76/77. The Russian director is Oberingenieur Filipenko. The German director is Dipl. Ingenieur Stanek, who took over after Kessler's death.

4. The firm has 350 employees, and consists of:

   a. An experimental laboratory.

   b. A construction office.

   c. A test shop.

   d. A prototype production shop.

5. EFEM reportedly receives its assignments directly from the firm in Leningrad. During the development period, interim reports and wooden models showing the outside measurements of the instruments are sent to Leningrad for approval or modification. When ready, the prototype, together with its drawings, is sent to Leningrad for mass production if considered suitable by the parent factory.

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6. EFIM also receives and executes occasional outside orders for the Russian Navy. Such orders have in the past included 2- and 3- phase wattmeters, frequency meters, measuring bridges, galvanometers, and, on one occasion, what is described as a universal apparatus (Universalgerät). Several of these orders have cost up to 150,000 RM Ost.

7. Following are notes and technical details concerning assignments which are being carried out at the present time:

a. Project No. 10

1) Designation of the project:

Development of a series of laboratory measuring instruments for high-frequency alternating currents up to 1,000 cycles belonging to Classes 0.5 and 1.

a) Ammeters.

b) Voltage meters.

c) Wattmeters.

d) Phase meters.

e) Frequency meters.

2) Technical Data:

The development of the measuring instruments constitutes an expansion of the series which began with precision moving coil sets.

The housings for the instruments have the following dimensions: 300 x 200 x 120 mm.

The instruments must correspond to the requirements of Class 0.5 in the range fixed for their nominal frequency.

The nominal frequency which has been set for all instruments except the frequency meter is 50 cycles. For higher frequency values up to 1,000 cycles, the instruments must meet the requirements of Class 1.

3) Norms:

The instruments must meet the "Gost" norms 1845-42. ("Gost" - Soviet technical norms).

4) Extent of work and schedule:

The total amount of work includes the constructive processing of the designs, the furnishing of sketches and blueprints of the project, a report on the technical development, a detailed technological report including details on the construction of work tools, as well as the development and construction of measuring and checking apparatus, and the manufacture and delivery of a series of test samples according to the following table. The delivery date is 1951.

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5) Table of Test Samples to be Delivered

Current Number	Subject	Measuring Range	Quantity
1	Precision ammeter of the moving-iron type with reversible transformer	0.125/0.25/0.5/1/2.5/5/10/25 Amp.	3
2	Precision voltmeter of the moving-iron type	15/30/75/150 V 75/150/300/600 V	3 3
3	Precision wattmeter	5 A; 30 V 1000 150 V 1.25 A; 30 V 1000 150 V 2.5 A; 30 V 1000 150 V 10 A; 30 V 1000 150 V 20 A; 30 V 1000 150 V	2 2 2 2 2
4	Combination ampere- and volt-selector for watt- and phase meters	prim.: 0.125/0.25/0.5/1/2.5/5/10/25 A sec.: 5 Amp 30/75/150/300/600 V	3
5	Transformer for watt- and phase meters	prim.: 0/25/50/100/250/500/1000 A sec. : 5 Amp	3
6	Pre-resistor for watt- and phase meters	75/150/200/600 V	3
7	Precision phase meter of Class 0.5	cos = 0-1 5 A; 30 V 1000 150 V cos = 0.5-1-0.5 5 A; 30 V 1000 150 V	2 2
8	Frequency meter (needle- or reed-type frequency meter)	100 - 600 Volts up to 1000 cycles	?

b. Project No. 11

1) Designation of the project:

Development of a series of electrical laboratory measuring instruments for high frequencies of from 30 to 50 megacycles for measuring amperage and voltage.

a) Ammeters with thermo-converters.

b) Ammeters with rectifiers.

c) Voltage meters.

2) Technical Data:

The instruments to be developed are primarily high-frequency instruments and are therefore adapted to the special requirements of this field. Either a light-mark galvanometer or a table instrument (120 x 120 x 60 mm) with a mechanical indicator is permissible as an indicator. For measuring high-voltage current of up to 10 KV, a round instrument

having a diameter of about 80 mm and a metal housing in a specially insulated frame, which permits the easy removal and replacement of the measuring instrument, can be used.

All indicators are to have magnetic core rotary coil meters.

3) Norms:

The instruments must meet the "Gost" norms 1845-42.

4) Extent of Work:

The total amount of work includes the constructive processing of the designs etc. (just as described for Project No. 10).

The development is to be carried out on the devices listed in the following table:

5) Table of Test Samples to be Delivered

Current Number	Subject	Measuring Range	Quantity
1 - 8	Thermo-converter	5/10/15/20/30/50/75/100 mA (in a vacuum)	5 of each
9 - 14	Thermo-converter	150/200/300/500/750/1000 mA	5 of each
15	Light-mark galvanometer for Nos. 1 to 8		3
16	Indicator for Nos. 9 to 14		10
17	Transformer	1:20; f = .1-3 mc	3 of each
18	"	1:20; f = 1-30 mc	
19	"	1:50; f = .1-3 mc	
20	"	1:50; f = 1-30 mc	
21	"	1:100; f = .1-3 mc	
22	"	1:250; f = .1-3 mc	
23	"	1:500; f = .1-3 mc	
27	Thermo-converter for Nos. 21 to 26	1 Amp	15
28	High-voltage ammeter	100 mA	3
29	" " "	300 mA	3
30	" " "	1 Amp	3
31	High-voltage ammeter with transformer	3 A; .1-3 mc	3
32	High-voltage ammeter with transformer	5A; 1-50 mc	3
33	High-voltage ammeter with transformer	10A; .1-30 mc	3
34	Light-mark galvanometer with rectifier	0.1 mA	2

c. Project No. 12

1) Designation of the project:

Development of a series of DC rotating-magnet instruments in the housings of round switchboard instruments with housing diameters of 40, 60 and 80 mm for measuring direct current or voltage.

2) Technical Data:

The instruments to be developed are meters for operating current and voltage in switchboard form for direct currents and voltages with rotating-magnet meters. They must meet the requirements of Class 1.5. In order to keep the instrument production costs low, only one type of metering unit is desired for all three instrument types. The restoring force is created with the help of a small permanent magnet, by which the measuring unit is simultaneously adjusted to the required current sensitivity.

All instruments are equipped with air dampers. The voltage meters are furnished with hard carbon resistances as pre-resistors.

3) Norms:

The instruments must meet the "Gost" norms 1845-42.

4) Extent of work:

The total amount of work includes the constructive processing of the designs, etc. (just as described for Project No. 10).

The development is to be carried out on the devices listed in the following table:

5) Table of Test Samples to be Delivered

Current Number	Subject	Measuring Range	Quantity
1	Ammeter (40-mm diameter)	1 mA	2
2	" " " "	50 mA	2
3	" " " "	150 mA	2
4	" " " "	1 A	2
5-8	Ammeter (60-mm diameter)	1 mA; 100 mA; 500 mA; 3 Amp	2 of each
9-12	ammeter (80-mm diameter)	1 mA; 30 mA; 300 mA; 10 Amp	2 of each
13-16	Voltage meter (40-mm diameter)	3 V; 30 V; 150 V; 600 V	2 of each
17-20	Voltage meter (60-mm diameter)	3V; 75 V; 450 V; 15 & 600 V	2 of each
21-24	Voltage meter (80-mm diameter)	3 V; 50 V; 3 & 150 V; 7.5-75-600 V	2 of each